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## CLAIMS

1. A method of forming a power factor correction  
5 device comprising:  
    forming the power factor correction device to receive  
    an AC voltage;  
    forming an error amplifier of the power factor  
    correction device to generate a deviation voltage  
10 representative of a difference between an output voltage  
    of a power factor correction system and a desired output  
    voltage;  
    forming a storage element to receive a value of the  
    deviation voltage and to form a stored voltage on the  
15 storage element; and  
    forming a zero crossing detector to detect a zero  
    crossing of the AC voltage and to responsively enable  
    adjusting a value of the stored voltage.
- 20 2. The method of claim 1 wherein forming the zero  
    crossing detector to detect the zero crossing of the AC  
    voltage and to responsively enable adjusting the value of  
    the stored voltage includes forming the zero crossing  
    detector to responsively couple the deviation voltage to  
25 the storage element during a point of the zero crossing.
3. The method of claim 2 wherein  
    coupling the output of the error amplifier to the storage  
    element at the zero crossing of the AC voltage includes  
30 enabling a switch to couple an output of an error  
    amplifier to the storage element at the point of the zero  
    crossing.

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4. The method of claim 1 wherein forming the zero crossing detector to detect the zero crossing of the AC voltage and to responsively enable adjusting a value of the stored voltage includes adjusting the value of the stored voltage within no greater than twenty degrees of the zero crossing of the AC voltage.

5. A power factor correction method comprising:  
receiving an AC voltage;  
10 storing a value of an output of an error amplifier on a storage element to form a stored voltage;  
detecting a zero crossing of the AC voltage and responsively adjusting the stored voltage;  
using the stored voltage as an error voltage; and  
15 using the error voltage to form an AC reference voltage of a power factor correction circuit.

6. The power factor correction method of claim 5 wherein storing the value of the output of the error amplifier on the storage element includes coupling the output of the error amplifier to the storage element at a point during the zero crossing of the AC voltage.

7. The power factor correction method of claim 5 wherein detecting the zero crossing of the AC voltage and responsively adjusting the stored voltage includes adjusting the stored value within no greater than twenty degrees of the zero crossing of the AC voltage.

8. A power factor correction device comprising:  
an error amplifier having a first input coupled to receive a first reference voltage, a second input coupled to receive a feedback voltage, and an output;  
a storage node;  
35 a voltage return;

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a storage element having a first terminal coupled to the storage node and a second terminal coupled to the voltage return; and

5 a zero crossing detector having an input coupled to receive an AC signal and an output coupled to responsively adjust, during a zero crossing of the AC signal, a value of a voltage stored on the storage element.

9. The power factor correction device of claim 8  
10 wherein the zero crossing detector having the input coupled to receive the AC signal and the output coupled to adjust, during the zero crossing of the AC signal, the value of the voltage stored on the storage element includes a switch having a first terminal coupled to the  
15 output of the error amplifier, a control terminal coupled to the output of the zero crossing detector, and a second terminal coupled to the storage node.

10. The power factor correction device of claim 8  
20 wherein the zero crossing detector is operable to adjust the value of the voltage stored on the storage element within no greater than twenty degrees of the zero crossing of the AC signal.

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